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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,983	06/07/2006	Pietro Baita	FE 6150 (US)	7220
34872	7590	12/20/2007	EXAMINER	
Basell USA Inc. Delaware Corporate Center II 2 Righter Parkway, Suite #300 Wilmington, DE 19803			LU, C CAIXIA	
			ART UNIT	PAPER NUMBER
			1796	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/581,983	Applicant(s) BAITA ET AL.	
	Examiner Caixia Lu	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>10/3/06</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiba (JP 63075009 A) in view of Korvenoja et al. (US 5,204,303) and Ford et al. (US 6,191,239).

Chiba teaches conducting ethylene polymerization in two stages, wherein a low molecular weight ethylene polymer is prepared in the first stage in the presence of an internal electron donor polysiloxane containing Ziegler catalyst and molecular weight modifier of hydrogen, after the ethylene polymer from the first stage polymerization is mixed with a glycol ether, a second stage ethylene polymerization is then conducted to provide a high molecular weight ethylene polymer (pages 8-10 and Example 1 of pages 16-18).

It is noted that Chiba does not expressly teach (i) using a comonomer in the second stage, (ii) an internal electron donor rather than polysiloxane, (iii) external electron donor of THF, (iv) conducting the multistage polymerization in different combination of reactors, (v) conducting the polymerization in gas phase. However, those limitations are conventional in the art. Those limitations are considered conventional in the art. For example, Korvenoja discloses a Ziegler catalyst with

various internal electron donors including ester and THF (col. 4, lines 26-36); Ford discloses ethylene copolymerization process conducted in gas phase and in the presence of a prepolymerized Ziegler catalyst with an external electron donor of THF in an ethylene copolymerization process in the presence of a Ziegler catalyst (col. 1, line 35; and col. 5, lines 13-21).

Thus, it would have been obvious to a skilled artisan at the time the invention was made to employ the internal and/or electron donor disclosed in Korvenoja and/or Ford to Chiba's ethylene polymerization process to conduct the multistage ethylene polymerization with increased catalytic activity and steric selectivity and improved mechanical properties of the ethylene polymers and in the absence of any showing criticality and unexpected results.

3. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ford et al. (US 6,191,239) in view of Gelus (US 5,990,251) and Korvenoja et al. (US 5,204,303).

Ford discloses ethylene copolymerization process conducted in gas phase and in the presence of a prepolymerized Ziegler catalyst with an external electron donor of THF in an ethylene copolymerization process in the presence of a Ziegler catalyst (col. 1, line 35; col. 4, lines 66-67; col. 5, lines 13-21, and Example 1). Ford's prepolymerization is conducted according to Example 1-7 of EP 0703 246 (its family US 5,990,251 is referred to for convenience). Ford's prepolymerization process combined with its ethylene copolymerization process meets the limitation of the instant claims

except that Ford does not expressly disclose an internal electron donor. Using internal electron donor is conventional to improve the steric selectivity of the Ziegler catalyst, and such is disclosed in Korvenoja (col. 4, lines 26-36).

Thus, it would have been obvious to a skilled artisan at the time the invention was made to employ Korvenoja's electron donor such as ester or THF to Ford's catalyst composition in the ethylene copolymerization process in order to improve the stereoregularity of the ethylene copolymer and in the absence of any showing criticality and unexpected results.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caixia Lu whose telephone number is (571) 272-1106. The examiner can normally be reached from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful and the matter is urgent, the examiner's supervisor, David Wu, can be reached at (571) 272-1114. The fax numbers for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1700.



Caixia Lu, Ph. D.
Primary Examiner